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SPECIFICATION FOR PORK SAUSAGES, CANNED

(*First Revision*)

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NEW DELHI 110002

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SPECIFICATION FOR PORK SAUSAGES, CANNED
(*First Revision*)

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(*Continued on page* 2)

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AMENDMENT NO. 2 MARCH 2004
TO
IS 3060 : 1979 SPECIFICATION FOR PORK SAUSAGES, CANNED

(First Revision)

(*Page* 5, *clause* **4.1.1**) — Insert the following clause after **4.1.1**:

'**4.1.2** Quality of water used for processing shall conform to IS 4251 : 1967||'.

(*Page* 5, *footnotes*) — Insert the following footnote at the end:

||Quality tolerances for water for processed food industry.'

(FAD 18)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 APRIL 2011
TO
IS 3060 : 1979 SPECIFICATION FOR PORK SAUSAGES, CANNED

(First Revision)

[*Page* 8, *clause* **5.2**(c)] — Substitute 'Net quantity of the contents of the can;' *for* 'Net mass of the contents of the can;'.

[*Page* 8, *clause* **5.2**(d)] — Substitute 'Drained quantity of the contents of the can;' *for* 'Drained mass of the contents of the can;'.

[*Page* 7, *clause* **5.2**(g)] — Insert the following at the end:

'h) Any other marking required under the *Standards of Weights and Measures (Packaged Commodities) Rules,* 1977, and the *Prevention of Food Adulteration Act,* 1954 and the Rules framed thereunder.'

(FAD 18)

Reprography Unit, BIS, New Delhi, India

Indian Standard
SPECIFICATION FOR PORK SAUSAGES, CANNED
(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 December 1979, after the draft finalized by the Meat Industry Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 The formulation of this standard had been undertaken at the request of the then Ministry of Health, Government of India. In the preparation of pork sausages, canned, the pork which constitutes the main ingredient is blended with other ingredients, such as pork fat, seasonings, fillers and sweetening agent. The blended material is then filled in animal casings or mechanically sectioned and is processed by heat treatment in hermetically sealed containers.

0.3 This Indian Standard was first published in 1965. This revision incorporates a number of modifications, namely, (a) a new type of sausages (cocktail) has been included, (b) soya products have been permitted as fillers, (c) the requirement for vacuum has been increased, and (d) the references to other standards have been updated and/or made to more appropriate methods.

0.4 In the preparation of this standard, due consideration has been given to the provisions of the Prevention of Food Adulteration Act, 1954, and the Rules framed thereunder as well as the Meat Food Products order, 1973. However, this standard is subject to the restrictions imposed under these, wherever applicable.

0.5 This standard contains clauses which call for an agreement between the purchaser and the packer at the time of placing orders. The relevant clauses are listed below:

a) Packing (*see* **5.1**), and
b) Marking (*see* **5.2**).

0.6 In the preparation of this standard, assistance has been derived mainly from S.A.B.S. 209-1949 Specification for canned pork sausages and canned chipolata cocktail sausages issued by the South African Bureau of Standards.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of test for pork sausages, canned.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Meat — The uncured sound and wholesome flesh of the pig, namely pork, used as food (*see* IS : 1723-1973†).

2.2 Offal — This includes brain, fries (liver), gut, paunches, udders, sweetbreads (thymus, pancreas) tripe, spleen, lungs, salivary glands, lymphatic glands, testicles, uterus, ovaries, skin other than pork rind, cartilage and bony tissue.

3. TYPES

3.1 Pork sausages, canned, shall be of three types, namely:

a) Type 1 — Pork sausages (with skin), canned;

b) Type 2 — Pork sausages (Skinless), canned; and

c) Type 3 — Cocktail sausages; canned.

4. REQUIREMENTS

4.1 Hygienic Requirements — The material shall be prepared and handled under strict hygienic conditions by persons free from contagious and infectious diseases and only in premises maintained in a thoroughly

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*Rules for rounding off numerical values (*revised*).

†Specification for pork (*first revision*).

clean and hygienic condition and having adequate and safe water supply (*see* IS : 2491-1972*) and duly approved and licensed by the public health authorities concerned. All workers shall use clean, washed clothings. Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

4.1.1 All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hose, brushes and other equipment necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersion in/or swabbing with hypochlorite or other suitable chlorine solution.

4.2 Ingredient Requirements

4.2.1 *Quality of Meat* — All meat used shall be obtained from healthy animals slaughtered in licensed premises and subjected to ante-mortem and post-mortem inspection as prescribed in IS : 1982-1971†. The pork shall be moderately firm (not oily or soft), of bright colour, fine texture (not dark or coarse), and free from foreign odour or flavour, discolouration and deterioration. Frozen pork may also be used provided it is properly thawed and is sound and fit for human consumption before being used. Trimmings shall be free from gristle, tendon tissues and excessive connective tissues. Trimmings which are bruised or which are from parts of the head other than the masseter muscles or from seedy parts of ballies, shall not be used. Boar meat, feet, and offal shall not be used in the preparation of the product. Processed rinds may be used subject to a maximum of 2 percent by mass of the meat.

4.2.2 *Filler* — Only cereal rusk, cracker meat (broken biscuits), potato flour or other wholesome edible material of farinaceous origin shall be used as filler.

4.2.3 *Animal Casings* — Hog, sheep or goat casings used shall conform to the quality laid down in IS : 1981-1978‡.

4.2.4 *Salt* — Salt used shall conform to IS : 253-1970§.

4.2.5 *Spices* — All spices used shall be clean, sound and strictly wholesome and in every way fit for human consumption.

4.2.6 *Phosphates* — Phosphatic binders of food grade quality may be used in the preparation of pork sausages.

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*Code for hygienic conditions for food processing units (*first revision*).

†Code of practice for ante-mortem and post-mortem inspection of meat animals (*first revision*).

‡Specification for animal casings (*first revision*).

§Specification for edible common salt (*second revision*).

4.2.7 *Fat* — Only pure wholesome and edible back or flayer pork fat shall be used.

4.2.8 *Sweetening Agents* — Only refined cane sugar (*see* IS : 1151-1969*) or dextrose (*see* IS : 874-1975†), shall be used.

4.3 Preparation and Processing — The material shall be prepared and filled under strict hygienic conditions into sound and thoroughly clean containers and then sealed hermatically. The sausages may be solid packed or packed in brine. If the cans are lacquered, the lacquer used shall be of such quality that it does not impart any foreign unpleasant taste and smell to the contents of the can; does not peel off during processing and storage of the product. The lacquer shall not be soluble in fat or brine to any extent. The cans shall show no evidence of rusting. The cans shall be thoroughly cleaned before filling. Processing shall be at such temperature and for such length of time as will ensure thorough cooking and adequate sterilization of the finished product without burning, scorching or over-cooking.

4.4 Requirements for the Finished Product

4.4.1 *Flavour and Appearance* — Pork sausages, canned, shall be palattable, and shall have pleasant flavour and attractive appearance. No scorched, bitter, foreign or any other objectionable odour shall be present.

4.4.2 *Fill of Container* — The product shall not occupy less than 85 percent of the total volume capacity of the container when tested according to the method prescribed in Appendix A. If packed in brine, the drained mass shall be not less than 80 percent of the total contents of the container when determined according to the method prescribed in Appendix B.

4.4.3 *Freedom from Defects* — Pieces of hair, bristle, skin and particles of bone shall not be present in the product. The product shall be free from dirt, and from insect and rodent contamination. Poisonous or deleterious substances shall not be present. The product shall be free from scorched or burnt patches; and the container shall not show any evidence of internal corrosion.

4.4.4 *Uniformity of Size and Shape* — The contents of any one container shall be of reasonably uniform size and shape.

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*Specification for refined sugar (*first revision*).

†Specification for dextrose monohydrate (*second revision*).

4.4.5 *Composition Requirements*

4.4.5.1 The material shall contain not less than 80 percent of meat including fat provided that the total fat content does not exceed 32 percent of the total meat content when tested according to the method prescribed in Appendix C. Not more than 5 percent of hearts may be included in the meat content.

4.4.5.2 Phosphates when used shall not exceed 0·5 percent by mass.

4.4.6 *Vacuum Requirements* — The can shall give a negative pressure of not less than 150 mm of mercury at vacuum at 27± 2°C under normal atmospheric pressure.

4.4.7 The material shall also conform to the limits for metallic impurities and microbiological activity as prescribed in Table 1.

TABLE 1 LIMITS FOR METALLIC IMPURITIES AND MICROBIOLOGICAL ACTIVITY

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST (REF TO APPENDIX IN IS : 1743-1973*)
(1)	(2)	(3)	(4)
i)	Arsenic, ppm, *Max*	1	B
ii)	Lead, ppm, *Max*	5	C
iii)	Copper, ppm, *Max*	15	D
iv)	Zinc, ppm, *Max*	19	E
v)	Tin, ppm, *Max*	140	F
vi)	Microbiological activity	To satisfy the requirements of the test	G

*Specification for mutton and goat meat canned in brine (*first revision*).

5. PACKING AND MARKING

5.1 Packing — Unless agreed to otherwise between the purchaser and the vendor, the cans shall be packed in cases sufficiently strong to withstand rough handling during transport.

5.2 The cans may be labelled either by printing or lithographing on the cans themselves or by attaching labels printed on paper as agreed to between the purchaser and the vendor. The label shall give the following information:

a) Name and type of the material along with brand name, if any;

b) Name and address of the manufacturer;

c) Net mass of the contents of the can;
d) Drained mass of the contents of the can;
e) Batch number or code number — embossed indelibly on the can;
f) Names of the ingredients; and
g) Licence number given by the health authorities.

5.2.1 The product may also be marked with Standard mark.

5.2.2 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6. SAMPLING

6.1 Sampling of pork sausages, canned, shall be done according to the method prescribed in Appendix A of IS : 1743-1973*.

7. TESTS

7.1 Tests shall be carried out as prescribed in **4.4.2**, **4.4.5.1** and relevant appendices in col 4 of Table 1.

APPENDIX A

(*Clause* 4.4.2)

DETERMINATION OF THE FILL OF THE CONTAINER

A-1. PROCEDURE

A-1.1 Cut out the lid of the container without altering the height of the double seam. Measure the vertical distance from the top level of the container to the top level of the contents. Remove the contents, wash, dry and weigh the container. Fill the container with distilled water to within 4·8 mm vertical distance below the top level of the container. Record the temperature of water, weigh the container and determine the mass of the water (W_1) by subtracting the mass of the container. Maintaining the water at the temperature recorded above, draw off water from the filled container to the level of the original contents, and determine the mass of the remaining water (W_2) by subtracting the mass of the container.

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*Specification for mutton and goat meat canned in brine (*first revision*).

A-2. CALCULATION

A-2.1 Fill of container, percent by mass $= \dfrac{W_2 \times 100}{W_1}$

NOTE — In the case of a container with a lid attached otherwise than by a double seam, remove the lid and proceed as in **A-1.1** except that the container shall be filled to the top when determining W_1.

APPENDIX B

(*Clause* 4.4.2)

DETERMINATION OF DRAINED MASS

B-1. APPARATUS

B-1.1 1·70 mm IS Sieve (Aperture 1·70 mm) — BS Sieve 10, ASTM Sieve 12 or Tyler Sieve 10 have their apertures within the limits specified the above IS Sieve and may, therefore, be used as 1·70 mm IS Sieve [*see* IS : 460 (Part I)-1978*].

B-2. PROCEDURE

B-2.1 Carefully weigh the clean and dry sieve and empty the contents of the can into the sieve in such a manner as to distribute the product evenly without disturbing the product. Incline the sieve so as to facilitate drainage. Allow to drain for five minutes, and weigh the sieve again along with the product. The drained mass shall be the mass of the product and sieve less the mass of the sieve.

APPENDIX C

(*Clause* 4.4.5.1)

DETERMINATION OF THE TOTAL MEAT CONTENT

C-1. APPARATUS

C-1.1 Kjeldahl Flask — 500 ml capacity.

C-1.2 Distillation Assembly — The assembly consists of a round-bottomed flask of 1 000 ml capacity fitted with a rubber stopper through

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*Specification for test sieves: Part I Wire cloth test sieves (*second revision*).

which passes one end of the connecting bulb tube. The other end of the bulb tube is connected to the condenser which is attached by means of a rubber tube to a dip tube which dips into a known quantity of standard sulphuric acid contained in a beaker of 250 ml capacity.

C-2. REAGENTS

C-2.1 Potassium Sulphate or Anhydrous Sodium Sulphate

C-2.2 Concentrated Sulphuric Acid — sp gr 1·84.

C-2.3 Yellow Mercuric Oxide

C-2.4 Potassium Hydrogen Phthalate

C-2.5 Methyl Red-Methylene Blue Indicator Solution — prepared by mixing one part of 0·2 percent solution of methyl red in rectified spirit (*see* IS : 323-1959*) with one part of 0·1 percent solution of methylene blue in rectified spirit.

C-2.6 Phenolphthalein Indicator Solution — prepared by dissolving 0·1 g of phenolphthalein in 100 ml of rectified spirit (*see* IS : 323-1959*).

C-2.7 Standard Sodium Hydroxide Solution — 0·5 N.

C-2.8 Standard Sulphuric Acid — 0·5 N.

C-2.9 Sodium Hydroxide Solution — Dissolve approximately 450 g of sodium hydroxide in 550 ml of distilled water. Cool and filter through glass wool if necessary.

C-3. PROCEDURE

C-3.1 Determination of Lean Meat Content

C-3.1.1 Accurately weigh 2 g of the test sample and transfer it to the Kjeldahl digestion flask. Add 10 to 15 g of potassium sulphate (or anhydrous sodium sulphate), 0·1 to 0·3 g of mercuric oxide and 15 to 25 ml of concentrated sulphuric acid. Heat gently until frothing ceases and then heat strongly until the solution becomes clear and continue the digestion for at least 30 minutes longer (about 32 hours are required for complete digestion). Cool and dilute with about 250 ml of distilled water. Cool to room temperature, add a few glass beads and run 50 ml of the sodium hydroxide solution down the side of the flask so that it forms a separate layer and does not mix with the acid solution at once.

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*Specification for rectified spirit (*revised*).

Connect to the distillation assembly, mix the contents of the flask by gently swirling, and then distil off the ammonia in about 250 ml of distillate into an Erlenmeyer flask containing a known volume of excess of standard sulphuric acid. Titrate the excess acid in the Erlenmeyer flask with the standard sodium hydroxide solution using three to four drops of the methyl red-methylene blue indicator solution.

C-3.1.2 Carry out a blank determination using all the reagents in the same quantities but without the material to be tested.

C-3.1.3 *Calculation*

i) Nitrogen, percent by mass $= \frac{(x - y)\, N \times 1{\cdot}4}{M}$

where

x = volume, in ml, of sulphuric acid neutralized by the ammonia distilled from the sample;

y = volume, in ml, of sulphuric acid neutralized by the ammonia distilled from the blank;

N = normality of the sulphuric acid; and

M = mass, in g, of sample taken.

ii) Lean meat content percent = nitrogen percent by mass × 30.

C-3.2 Determination of Fat Content

C-3.2.1 Accurately weigh 5 g of the sample into a suitable evaporating basin containing a short glass rod with a flattened end. Heat on a water-bath until most of the moisture is expelled. Cool the basin and add 25 ml of ether and disintegrate the residue in ether by means of the glass rod. Decant the ether extract through a filter paper. Repeat the maceration and extraction until all the fat has been removed (about five extractions are necessary). Remove the ether from the combined extracts by distillation from a previously weighed 50-ml distillation flask. Dry the flask and contents to constant mass under vacuum in a boiling water-bath.

C-3.2.2 *Calculation*

$$\text{Fat, percent by mass} = \frac{\text{Mass of ether extract}}{\text{Mass of sample taken}} \times 100$$

C-3.3 Calculation of Total Meat Content — Calculate the total meat content as follows:

$$\text{Total meat content percent by mass} = (\text{Lean meat, percent by mass}) + (\text{Fat, percent by mass}).$$

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